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ABSTRACT

Teachers can use unit blocks as tools for directed learning activities, or blocks can be reserved for children's discovery learning experiences. To use unit blocks for discovery learning, children need adequate, protected space and sufficient, uninterrupted time. Given opportunities for free play with unit blocks, children progress through seven observable stages of involvement. At the first stage very young children carry blocks around the room specifically for the purpose of carrying blocks around the room. At the second stage children place blocks in horizontal rows or vertical towers. At the third, fourth, and fifth stages children bridge separate blocks, enclose space, and embellish simple constructions. At the sixth stage the child names the block construction, and it becomes the center of dramatic play. At the seventh stage preschool children reproduce actual structures with which they are familiar. Primary school students can progress to an eighth stage, first involving planning on paper and then implementing the plans with the blocks. By using unit blocks children develop language skills, self-awareness, and understanding of the physical properties of objects. Additionally, teachers can directly and indirectly introduce vocabulary words, such as those contained in the Peabody Picture Test, into the context of block play. (Author/RH)

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UNIT BLOCKS

A Curriculum for Early Learning

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August 1, 1980

FOREWORD

The Early Childhood Learning Center of the University of the District of Columbia, in many ways, is an unusual place for children. The Center was established almost simultaneously with the 1968 opening of Federal City College. The College was the first response for public education at the post-secondary level for the citizens of Washington, D.C. In 1977 this College consolidated with D.C. Teachers College and Washington Technical Institute to form a land-grant institution, The University of the District of Columbia. Among land-grant institutions in America, UCD is unique: It is the only urban land-grant university; it directs teaching, research and extension to urban problems.

Natalie Arrington, the founder and first director of the Early Childhood Learning Center, was instrumental in establishing an unusual educational program for young children. She hired teachers who worked as a team to provide quality education for children ages two to five years.

The original purpose of the Center was twofold:

> To provide an educational setting for children whose parents were students or employees of Federal City College; and
>
> To provide an observation and practicum site for the Federal City College students who were preparing to teach young children.

Over the years, an educational program featuring vertical grouping, the integrated day, open scheduling, and careful planning for children as individuals has evolved. Daily field trips into Washington allow for exploring playgrounds, museums, art galleries, and government offices. The children also visit with adults who

share with them the unique aspects of their job.

In this educational setting children have the opportunity to explore and discover themselves and their world. The teachers are able to study each child's individual learning style. One of the major outcomes of The Center's foci has been an emphasis on the role Unit Blocks play in child development.

Gladys C. Weaver
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INTRODUCTION

Unit Blocks, created by Caroline Pratt at the beginning of the century, are the most ideal piece of material designed for use by young children. Mud, sand, wind and water are superior, but they are not designed specifically for children. Blocks, in their simplicity, have hidden within them thousands of secrets to be discovered by the child. The flexibility of Unit Blocks makes them totally interdisciplinary. Socialization, perception, language, mathematics, science, movement, dramatic play, and even music find their way into the Block Corner. If I were forced to choose just one piece of material from among all the toys and materials available to a teacher, I would choose a set of Unit Blocks.

Unit Blocks can be used to teach directly or they can be used as discovery material. Unit Blocks can illustrate developmental stages and can be a foundation for language development. The purpose of this curriculum is to share the insights I have gleaned over my years of creating block corners, observing and occasionally participating in block play with children three, four, and five years of age.

The Material

A variety of materials fall under the general description "block." Relatively large, hollow, wooden blocks can be used to construct buildings large enough to house little people. One hundred cubes are found in most kindergarten classes. Table blocks, such as "Lego Blocks," "Cuisenaire Rods," and "Attribute Blocks" are popular both at home and school. This discussion will be limited to the Unit Block

because it plays a unique and important part in an early childhood education curriculum.

Unit Blocks are made from hardwood and are kept in specially designed shelves. They are unfinished and should not be painted, although they may be varnished to extend their life.

The Basic Unit is a brick-shaped rectangle measuring one and three-eighths inches by two and three-fourths inches by five and one-half inches. The Half Unit, the Double Unit, and the Quadruple Unit block complete the set of basic blocks.

There is also an assortment of arches, forks, cylinders, wedges, and triangular shaped blocks. In my opinion, a classroom cannot have too many blocks.

Special shelves are designed for the storage of Unit Blocks. Shelving is important for two reasons. An orderly approach to storage of the blocks is in keeping with the child's own natural tendency to create order and will result in the proper care and respect for the material. Secondly, the child not only creates order, but he gets visual and muscular impressions of size differences which he would never get if the blocks were stored by dumping them into a cart or other container.

Space is essential for block building. Ideally the area should be set apart from the classroom's regular traffic pattern. It needs to be large enough for all the children to be actively engaged in building or playing at the same time. The area should be designated in some way. Our area is carpeted, which somewhat muffles the noise of a major construction failure. The carpet defines and sets the block area apart from the rest of the room. A variety of other materials

compliment blocks. Cars, trucks, people, and animals are used for dramatic play. These accessories can be changed from time to time to reflect or expand the interest of the children. However, too many accessories can distract the children from major building projects. I have been known to put all the cars away until building gets under way. I take away driver's licenses for reckless driving.

While a good supply of blocks is essential, as is shelving and adequate space, without time the full potential of blocks will not be achieved. Time can be viewed in terms of hours, days, weeks, months and years. A classroom structured with a minimum of scheduling and flexibility as to when, where, and for how long a child pursues an activity gives the child what he needs most in the Block Corner--TIME.

Sometimes a child needs hours of uninterrupted time to work through a construction problem or to work out a building urge. After a break for snack, he needs to be able to exercise the option of returning to the Block Corner without someone saying, "You've been building all morning. Find something else to do."

Some children need to spend weeks at almost uninterrupted block play. They will participate in the group activities and join friends using other materials, but their primary focus is block play.

In the following section, the sequences of a child's building pattern is discussed. A child needs months and even years of available block play to progress through these stages. Block play needs to be viewed as an important, permanent area of the curriculum for which children need to be given adequate time to develop many concepts and skills.

UNIT BLOCKS--TEACHING AND DISCOVERY

We can consider two approaches to the use of Unit Blocks in the classroom. The teacher can use the Unit Blocks as a teaching tool or she can approach them as a discovery material and let the child explore their use with little or no direction, save establishing rules to create a good building atmosphere.

UNIT BLOCKS AS TEACHING TOOLS

Unit Blocks can be used for directed activities. Under the direction of the teacher, the Basic Unit Blocks can be used to teach quantity. The single block is called "one." Place two Unit Blocks together and count, "one, two." Leaving these blocks in place, take three more blocks together and count, "one, two, three." Blocks are added to build a counting stair.

The children can be introduced to fractions using the Double and Quadruple Unit Blocks. Geometric concepts are introduced using triangles and ramps. The teacher can build structures and the children can be asked to copy her design, thus aiding in the development of perceptual skills.

If I were in the unfortunate position described in the introduction, that is, if I were limited to a single piece of material, I would use the Unit Blocks for such directed activities. Because I have a classroom based upon a rich selection of THINGS, I can use other block-like materials for directed activities. Number rods are used to teach the child quantity and counting. Cuisenaire rods are used to teach fractions, equations, and a variety of other concepts.

UNIT BLOCKS
As Discovery Material

Because we have these complimentary materials for counting, for naming geometric shapes, for language development, the use of the blocks can be reserved for discovery on the part of the child, with as little intervention and direction as is necessary for safety and community living. Within each child there is sufficient curiosity and interest to unlock many secrets hidden in the blocks.

If there is to be limited intrusion by adults in the Block Corner, and maximum discovery on the part of the child, the children need to understand basic rules. As usual, the rules need to be reasonable and few in number. The child who is not following the rules is simply removed without fanfare and occupied in another part of the room, by saying, "Come along, let's use the Attribute Blocks at the table." My rules include:

1. Keep the blocks and cars on the rug. This is basically a housekeeping rule to keep the blocks from being spread "from here to China." Limiting car driving to the rug is a necessary safety rule.

2. Blocks are not to be thrown. The reason for this rule is obvious. A block flying through the air could be a lethal weapon. Related to this, an equally obvious rule, blocks are not for hitting or for pounding on anyone or anything.

3. Do not walk on blocks. This again is for safety. Climbing and walking on blocks can lead to serious falls.

4. Buildings are to be taken down, not knocked down. This rule is made to be broken. Part of the joy of building is destruction. Yet this must be done with care and is usually reserved for Fridays, or is done with a special announcement. A block falling from a tall building can cause real damage.

5. Once a building is built, leave it up until it needs to be taken down. This is based upon respect for other's work.

6. Blocks are put away every Friday. We are back to a housekeeping rule, and respect for a child's sense of order.

In conjunction with these rules, it is expected that the children coexist with each other. Coexistence operates on three levels. The youngest children work in the Block Corner almost unaware of the other children. On the next level, the children work in cooperative building ventures. Finally, dramatic play centers around the existing structures. This activity is often directed by the oldest children and may involve even the youngest.

Limited intrusion by the adult does not mean total neglect. Life in the Block Corner is not idyllic. There are conflicts. The children will usually work problems out themselves, short of armed or even unarmed conflict. In this setting, children can learn a wide range of social skills, such as cooperation, sharing, exchange, conflict solving, leadership, how to follow, how to win and how to lose, and how to persuade short of using force. The teacher's role is to support calm, reasonable resolution of problems. Often this is done merely by indication with a look that she is aware of the problem and will move in if necessary. At times, the children will bring the problem to the teacher for arbitration. Until all the children have a high degree of inner control, it is necessary for the teacher to be well aware of the current of events in the Block Corner.

"Jimmy took my block."

"Tell him firmly but nicely, 'Do not take my block.' If you can't decide whose block it is, then I will have to take it." Then act accordingly.

Adult help is also necessary at "put away time." This is not a fun time, but with some music, a happy event to follow it up, it can usually be made less disagreeable. This is a group responsibility; everyone helps, builders and non-builders alike. It is part of community living.

DEVELOPMENTAL STAGES

Montessori, Piaget, Kohlberg, Jung, and such popular writers as Gail Sheey, in Passages, have written extensively on the various stages of human development throughout life. These stages are often difficult to observe, especially for a teacher in the classroom. Many of the stages develop slowly over a long period. Harriet Johnson, as long ago as 1933, wrote about developmental stages in her book, The Art of Block Building. These seven stages, re-defined in The Block Book, are present today in Block Corners where even the young children are free to build. Unlike Montessori's "sensitive periods," Piaget's "assimilation," and "accomodation," and Kholberg's stages of moral development, the Block stages are concrete, and immediately recognizable and develop within a period observable in pre-school settings. Like the stages seen in children's art around the world, they are actually there for you to see. As there is no guessing about the appearances of the crosses and circles in children's art, the regular progression from tower building through bridging to enclosing space is there for all to see in the Block Corner.

For years I have used a camera to record the children's activities. After

reading The Block Book, I re-examined the pictures from the Block Corner with new eyes. There they were, each stage, in its proper sequence. An older child, 4 or 5, "deprived" of block play, quickly and independently progresses through the early stages and settles into his "proper" stage. Often such a child seems to "make up" for lost time by spending what appears to be an inordinate amount of time building regularly through the stages in his own unique way.

First Stage: CARRYING

Very young children carry blocks around the room specifically for the purpose of carrying blocks around the room. At this point, the child is not at all interested in construction. This may be an extension of the phenomenon Montessori describes as a part of the coming together of the development of equilibrium and that of the hand. The child is combining balance with grasp. At this stage, he not only carries Unit Blocks, but carries heavy chairs, boxes, stools, and also small items, simply for the sake of carrying. Children work to work, not to complete a task.

I once watched a two-year-old child carefully carry small pieces of wrapped candy, one at a time, from one dish to another, until she had completely emptied one dish into the other. When she had completed the transfer, she rested for a few minutes, and then repeated the task, returning the pieces one at a time back to the original dish. The joy was in the carrying, not in the candy inside the wrapper.

The Second Stage: TOWERING

At the second stage construction begins. This early building is usually done "alone," that is, parallel to others who might occupy the Block Corner, but not in cooperation with them. At this stage, the blocks are placed in horizontal rows on the floor as in a road, or the blocks are stacked vertically in towers. Early structures are irregular and unstable. At this stage there appears a characteristic that runs throughout every phase of our little people's existence--the urge to repeat and repeat. This urge leads to the discovery that towers built next to each other become walls, while roads can become floors.

The First Stage, that of carrying, does not rely specifically on blocks. This stage and the following ones depend upon the child having blocks available. It is difficult to put a specific age on each stage. While Stage One occurs at one and a half to two, towering begins when blocks become available. The following stages are sequential and not related directly to age. They develop more in relationship to the amount of time a child spends building, and to his growing awareness of space, in relationship to his perceptual development, and to his increase in Social Skills.

The Third Stage: BRIDGING

Three blocks announce the arrival of this stage, bridging. When two separated blocks are connected by a third block to create a bridge, the young contractor is on his way to serious building. Again, this construction technique is repeated and

The Fourth Stage: ENCLOSING SPACE

The Third and Fourth Stages are usually developed in quick succession. In the Fourth Stage, the child encloses space, thus creating the foundation of his basic building structure. The grid pattern can be vertical or horizontal. Vertical enclosures lead to taller more stable buildings. Often a chair is brought into service here to extend the child's reach. Cooperation makes the job easier. "Mary, hand me the blocks while I stand on the chair," may be expressed verbally or non-verbally.

The Fifth Stage: EMBELLISHING

During this time there is an explosion of building due to the increased facility with the materials. The blocks can become whatever the child wants. A simple design is embellished, elaborated upon until it becomes a complex construction. Repetition is still a hallmark of the young builder. His efforts are classic in their symmetry and design. At this stage there is a great deal of creative interaction, direction and cooperation among the children as the constructions grow to massive proportions.

The Sixth Stage: DRAMATIC PLAY

At Stage Six the building itself does not change, as the builder has reached advanced building skills at Stage Five. It is the child's relationship to his construction which changes. He names his work and it becomes the center of dramatic play.

The full impact of television can be seen at this stage. Much of the imaginary play stems not from real life situations, but from programs watched on T.V. The child is, therefore, not interpreting a real life situation, he is interpreting someone else's interpretation of a situation. Through the years, Bat Man and Robin, Kung Fu, the Jackson Five, the Bionic Man, Evil Knieval, Spiderman, Emergency, the Bionic Woman and Wonder Woman and now the Dukes of Hazzard have populated the children's block cities. It is not even necessary for every child to have met these characters. Children who are not allowed to watch certain shows are made familiar with them through play and conversations. Real contact with real life situations and real life buildings can counteract the T.V. influence. Attempts to outlaw these influences would probably not be enforceable.

The T.V. influence leads to my personal request, "No guns, please." I tell the children that I personally do not like guns and we are going to operate under a DISARMAMENT TREATY. Guns are used for three reasons: to get food, to protect, and to hurt. We get our food from the supermarket, the teachers are here to protect the children, and we don't want to hurt anyone. Therefore, there is no need for guns. If a child brings a gun, it is checked at the door for repossession on departure at the end of the day. Persistent use of blocks as guns leads to the banishment of the child from the Block Corner.

The Seventh Stage: REPRODUCTION

At this stage the children actually build a structure with which they are familiar. Here they are faced with a new problem. Reproduction. It calls for

pre-planning and real communication of idea It is amazing how close they come to creating a recognizable structure. Our children move into this stage perhaps earlier than others due to having constant shared architectural experiences. As we travel around the city, we discuss the buildings as we visit them, and we look at pictures of them. The result is that the Washington Momument appears regularly in the Block Corner. The White House, the Washington National Cathedral, and the Kennedy Center have also appeared because they are familiar sights. An airplane has a building built around it and becomes the Air and Space building. Since the child is labeling in general, he also is prone to label these works with names and various signs, such as "Keep Off," "Danger," "Stop," etc.

The Eighth Stage: DRAFTING

For three years the Learning Center developed a primary class for children ages six to nine, so this is a stage I have added to those found in The Block Book. The primary class grew out of the same philosophy as the pre-school and continued many activities, including a Block Corner. Initially the buildings and activities did not change greatly. More attention was paid to detail. The children investigated more scientifically physical principles. At one point, a tall structure was built on four stilts and the opposing corner blocks were removed to see if the building would remain standing. (It did the first time, but they were unable to duplicate the experiment.)

Many buildings served utilitarian purposes, offering isolated places to work or play. Imaginary play called for more complete block representation. Their car

or truck was equipped with headlights, license plates, dashboards, citizen band radios, and a small icebox for the cylinder block canned drinks.

At one point the children were having trouble coexisting in the Block Corner. There were not enough blocks to build the massive structures each group wanted to build and maintain for the week. They divided themselves into groups, and each group had a week in the Block Corner. The "out" group spent a fair amount of time drawing "plans" that were later rendered into buildings. Later, when the building was actually built in the Block Corner, it served both as a play and work area. The ability to plan on paper and then make the plan concrete with blocks appears to me to be the eighth or drafting stage of block building. This is a powerful argument for leaving blocks in the classroom long past kindergarten.

Who knows what the possibilities are for further learning if these activities are available over longer periods of time under teachers who are understanding and who study how children can progress developmentally in their intellectual maturation.

LEARNING IN THE BLOCK CORNER

Some still want to ask, "But what do children LEARN by playing with blocks?"

Blocks are an exciting means of creative expression for the young child. There is the danger of becoming so analytical about their work that the beauty of the structures may be lost. Design and sculpture is an art form.

Children become involved with geometric and mathematical terms and concepts in a physical way. Long, short, huge, tiny, more, less become realities as these

words are dealt with in the concrete. Squares are constructed and used as the foundation for further building. The problem of how to construct a circular building with square and rectangular blocks was solved once.

Special language skills are developed as up, down, over, under, above, below, behind and on top of, and inside of, are needed to communicate ideas. Experimentation with proportion and balance will form a concrete basis for later knowledge. Tied to these concepts is the development of self-awareness. Remember the child is still discovering himself in space. "I cannot be where something else is." An unwelcomed visitor is one who cannot respect the existing structures, or one who is unintentionally clumsy. In the Block Corner, controlled movement, awareness of "where I am" is essential. "How high can I reach?" "How close must I put the chair to the building for my arm to stretch to reach the top?" On another level, "How can I get Mary to give me some of her small blocks?" These are all worked our in real situations.

How much teaching should a teacher do in the Block Corner? I choose to do very little direct teaching there, but I show considerable interest in what goes on. I listen constantly to the conversations. This gives me an indication as to a child's level of understanding a concept. When a concept taught at another place and time appears intact in the Block Corner, I am sure the child has internalized it. I am constantly amazed at how many of these concepts do appear there and how long it often takes for an idea to appear. It was two months after our trip to the top of the Washington Monument before the entire sequence was built and acted out in the Block Corner. It paid to wait for the idea to come naturally

from the children.

The children know I am interested in what goes on in the Block Corner. I encourage construction. I might suggest an alternative approach to a problem, but I do not try to teach in any formal way.

There was one time when I broke my own rule and attempted to teach a child how to build beyond the stage where he was operating. Eric was an exceptionally intelligent, sight-impaired child. He was enrolled in The Center when he was eighteen months old. By the time he joined our group, it was obvious that Eric would use every bit of the sight he had. (No one could tell me how much that was.) By his third year he had learned to recognize numbers and large letters. In short, Eric was an eager student and an active builder in the Block Corner. Yet, from September until well into December, Eric only built towers. There were simple towers all over the Block Corner, and they were all built by Eric. The Educationalist Specialist insisted Eric must be taught how to build. The Visual Trainer insisted Eric be taught how to build. Both tried, and Eric still built only towers. Finally, I tried to teach Eric to build bridges and to enclose space. He could copy what I did, but when he was alone in the Block Corner, he built only towers. I reverted back to my usual Block Corner attitude--I watched. I watched from February to April when the children returned from the Spring break. Eric went straight to the Block Corner and built towers and bridges, and he enclosed space just as if he had been doing it forever. Later Eric had other frustrations caused by poor spatial perception, but in each case he learned to solve his own problem, and I continued to look upon the Block Corner as the children's own special

world where they learn to solve their problems.

WORDS FROM THE PEABODY PICTURE TEST

The Peabody Picture Test illustrates how a teacher can indirectly prepare the child to cope with problems he will encounter. This serves as a sample of words that can be introduced informally to a child while he is playing in the Block Corner. Such words, not necessarily just the Peabody words, should be part of the teacher's regular vocabulary. When the teacher uses a new word, a child might respond in three different ways. First, he may merely pick up the meaning from the context and situation and not really pay attention to the word; he might wonder to himself "What IS she talking about?", and continue on without interrupting. Finally, he might stop to ask about what the word means, which is the only case where the word would be discussed or defined. Later, when I hear the child using a word correctly in a similar but not identical situation, I know he has understood the word and it has become part of his vocabulary. Remember, children understand far more words than they use in their conversation.

Here are examples of how to introduce a wide range of words into your Block Corner conversation:

Direct Introduction -- where you define the word in the midst of the conversation:

"That is a really nice building. It is big enough to be called an EDIFICE. You call a really huge building an EDIFICE."

"That is a nice tower. Did you know a tower of stone shaped like that is called an OBELISK? The Washington Monument is shaped like an OBELISK."

"That little structure on the top of your building could be called a CUPOLA. A CUPOLA is a little structure on top of a building for decoration, or to let in light. Is yours for decoration, or to let in light?"

"Some houses used to have THATCHED roofs. Their roofs were made from straw or leaves." (A picture here would be helpful.)

"That block you are using is called an ARCH. ARCHES make pretty doorways."

Indirect Introduction -- where the word is part of conversation:

"Did you see Mark's building TUMBLE down?"

"SIGNAL when you plan to knock a building down. You don't want to hit anyone."

"That building looks like R.F. Kennedy STADIUM, where the Redskins play."

"That wild driving leads to havoc and DESTRUCTION!" (This kind of statement will also lead to change of behavior as the child tries to figure out just what you mean. This is an effective way to maintain control.)

"Those BEAMS make your building stable."

"You can only pretend to NAIL your building together, right?"

"It is time to RAZE the buildings in the Block Corner."

"I do not want to see blocks CATAPULTING through the air!"

"Is Mark the construction ENGINEER on this project?"

"Who is that PEEKING out between the blocks?"

"You don't need to have an ARUGMENT over that particular block. There are others like it on the shelf."

"Blocks are not to be used as WEAPONS."

"That is very stable CONSTRUCTION."

When a child is building, "You are ERECTING a stable building."

"Who plans to live in that DWELLING?"

"Is that road for cars or PEDESTRIANS?"

"You are LADEN with blocks!"

"Those unused blocks are a BARRIER. Please move them."

"The Block Corner needs RENOVATION. It looks like a disaster area."

"You are sitting in a PRECARIOUS position. That building may fall anytime."

"You not only have a lovely building, you have EMBELLISHED it with interesting objects."

All the words in capital letters were taken from the Peabody Picture Test. They are words a teacher might not think to use with children in a Block Corner discussion, yet they are both appropriate, and will enlarge the child's understood and spoken vocabulary.

TIME-TIME-TIME

Finally another word should be said about when the children play with blocks. Like the other material in the room, the children are free to choose to work with materials from the mathematics shelf or the language shelf. I do hope a child maintains a certain balance in his selection of activities, so I will watch a child who chooses only block play and attempt to expand his interest. I am equally concerned about a child who works only with mathematics materials. I understand that some times a child needs long hours in the Block Corner or with math materials. In short, block play is not busy work between learning sessions, nor is the Block Corner another place to keep children occupied while I am teaching a small group. Blocks are important learning materials--and fun, too.

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